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ABSTRACT

A literature review of 132 studies of School-to-Work programs and consultations with the staff of the National School-to-Work Office, researchers, and practitioners in the field drew conclusions about the effectiveness of the School-to-Work initiative. Some of the study's conclusions were the following: (1) School-to-Work students maintain good grades and take difficult courses; (2) students in School-to-Work stay in school and receive their high school diplomas; (3) it is unclear how School-to-Work participation affects students' test scores; (4) School-to-Work students are prepared for college; (5) School-to-Work students can define their career interests and goals; (6) School-to-Work helps young people become prepared for the world of work; (7) the jobs that students obtain through School-to-Work tend to be different from and of higher quality than the jobs they would normally get; (8) School-to-Work helps students plan for the future and act in ways that will help them achieve their goals; (9) School-to-Work students feel that their teachers and peers are supportive; (10) School-to-Work enhances students' achievement in and perception of school; (11) teachers believe that School-to-Work benefits students; (12) teachers benefit from participating in work-based professional development; (13) employers support the School-to-Work vision and initiative; (14) employer participation in School-to-Work partnerships and in work-based learning activities is widespread; and (15) employers speak well of student interns and see benefits to their firms from participation in the program. (Contains 132 references.) (KC)

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Thomas R. Bailey
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School-to-Work: Making a Difference in Education

A Research Report to America

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School-to-Work: Making a Difference in Education

A Research Report to America

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Thomas R. Bailey
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Institute on Education and the Economy
Teachers College, Columbia University
2001

With a Foreword by
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Table of Contents

Acknowledgments 4

Foreword 5

Introduction 9

Background 10

Methodology 13

School-to-Work supports academic achievement 17

School-to-Work supports career preparation 23

School-to-Work supports youth development 29

Teachers see value in School-to-Work 33

Employers are enthusiastic about School-to-Work 35

Conclusion 39

School-to-Work Bibliography 40

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Foreword

Stephen F. Hamilton, Cornell University and
Robert J. Ivry: Manpower Demonstration Research Corporation

The enactment of the School-to-Work Opportunities Act of 1994 was intended to facilitate the education and career preparation of young people during their formative secondary school years, expanding pathways to post-secondary education, productive work, and self-sufficiency. The Act specifies three kinds of opportunities: school-based learning oriented to high academic standards; work-based learning leading to industry-recognized credentials; and connections between school-based and work-based learning, through career majors and applied or experiential learning. The Act provided "venture capital" that would expand existing programs and strategically add new ones and link them to create more powerful systems. States, regional consortia, school districts, employers and business organizations, and individual schools have used the flexibility afforded them by the Act to take many different approaches, some new and some building on efforts already underway.

The legislation evolved out of studies revealing that, compared with our competitors, the U.S. lacked a coherent system to connect education with employment in the part of the labor market where four-year college degrees are not required. The contrasting experience of Germany is most often cited to highlight the absence of a U.S. system that fosters the transition from school to work. Its highly regarded apprenticeship system is supported by employers and labor unions and works closely with schools. The School-to-Work Opportunities Act calls for creating systems – not merely new programs, but also a structure of linked opportunities beginning in middle school, taking root in high school, and continuing through post-secondary training. Studies of this still ongoing system-building find progress but also demonstrate that the process requires far more time than the legislation allowed.

The studies described in this report examine the early effects on youth, teachers, and employers of school-to-work components that have been put in place. With the federal legislation scheduled to sunset in 2001 and momentum growing in states and localities to sustain the core principles of the School-to-Work legislation, it is important and appropriate to take stock of the accomplishments and limitations to date. However, the outcomes are necessarily short term: not enough young people have been involved for a long enough time to yield a complete picture of the transition process, especially longer-term post-high-school results. Thus, current findings constitute a status report on intermediate indicators of an ambitious initiative that is still in progress.

The authors of this report have done a commendable job of synthesizing the emerging lessons from a disparate group of studies – many of them descriptive, but a few designed to more systematically measure the impact of particular types of school-to-work initiatives on student outcomes. The overall story is encouraging, especially on the implementation front: the Act has stimulated thousands of thriving school-business partnerships throughout the country aimed at fulfilling the goals of the legislation. There is also evidence that certain types of school-to-work initiatives are having a positive effect on some educational outcomes while also being warmly

embraced by students, teachers, school administrators, and employers. Yet, the jury is still out on whether the encouraging short-term effects will lead to longer-term positive effects on post-secondary enrollment and completion and labor market success.

The most notable accomplishments to date include:

- Employer engagement has reached a new threshold under School-to-Work. In 1997, only three years after the Act was passed and before all states had received funds, more than one-quarter of all firms employing 20 or more people were members of partnerships, and membership has grown steadily since. Their involvement ranges from active participation in the planning and implementation of School-to-Work, to sending employees into the schools as speakers and mentors, to providing opportunities for job shadowing and student and teacher internships. Most employers report that students are productive, valued workers.
- Many young people who participate in School-to-Work broaden their career options, including the option of college and other post-secondary enrollment. This finding addresses one of the most serious arguments of opponents, who feared that School-to-Work would restrict rather than expand student career and educational options.
- School-to-Work appears to support student achievement on some educational outcomes. Participants are less likely to drop out; their attendance and grades improve; they report greater access to work-based learning and other career development activities.
- School-to-Work also fosters broader youth development goals: increased access to caring adults, enhanced motivation, and better planning for the future.
- Participating employers and teachers are generally enthusiastic supporters of School-to-Work, describing it as beneficial to themselves, their organizations, and their employees/students.

It is important to point out other major accomplishments not covered in this report:

- School-to-Work generally serves a broad cross section of students – students performing at both high and low levels – thereby becoming a vehicle for de-tracking.
- There are indications that School-to-Work funds have stimulated the creation of new systems that will endure. Partnerships have been formed among businesses, schools, post-secondary institutions, and youth-serving organizations in thousands of communities. Relations among these partners have been effectively brokered by innovative intermediary organizations. More than half of the states have enacted legislation to maintain or expand the initiatives begun with federal School-to-Work funds. Attempts are now being made to integrate these initiatives into broader high school reform efforts such as the New American High Schools, Small Learning Communities (like career academies), and Tech Prep (like High Schools That Work).

Yet, at this relatively early stage of implementation, there are also clear areas for improvement:

- Evidence is lacking on the effects of School-to-Work on standardized test scores. Although such tests may not measure all the competencies and skills that school-to-work students are gaining, the growing importance of high-stakes testing requires that School-to-Work contribute to the educational objectives those tests measure.
- There is only limited evidence to date on whether School-to-Work has a positive effect on college enrollment and completion and labor market success. The assessment of long-term goals, including education and employment, requires longitudinal research on well-established practices.
- Only a small proportion of all students participate in all elements of School-to-Work: rigorous applied academics; intensive work-based learning; and comprehensive career development. Career development is the most widespread component. Given the encouraging findings of this report, greater efforts are needed to give more students the totality of the school-to-work experience.

The evidence to date suggests that policymakers and practitioners should build on the best of School-to-Work, dedicate more energy to addressing the shortcomings, and integrate School-to-Work into the broader high school reform and youth development movements. Additionally, the results of the longitudinal studies currently underway (and others that should be launched) will help us to see whether the short-term promise of School-to-Work is fulfilled in the long term.

This report is immediately relevant to educators, policymakers, parents, and employers. It is useful in that it is thus far the most comprehensive compilation of research examining the effects of recent school-to-work efforts.

Introduction

The School-to-Work Opportunities Act (STWOA) was passed in 1994 after more than a decade of discussion and debate about the country's system for preparing young people for work. This discussion was particularly focused on the role of secondary schools. The STWOA built on a variety of educational strategies that were already being used, but by providing funding through high-profile national legislation, the Act accelerated those activities, tried to give them greater unity and coherence, and provided a focal point around which to organize discussion of and experimentation with these educational innovations. But the authors of the STWOA had not intended to create a permanent separate "program." Rather their goal was to generate activities that could then be incorporated into the ongoing and normal functioning of the education system. As a result, the funding was scheduled to expire in 2001.

We are now reaching that funding end point and educators and policymakers must look back over the experience of the last several years to decide what lessons have been learned from the social and educational experiment represented by the STWOA. In what ways, if any, does the strategy have the potential to improve schools, educational outcomes, and the country's system for preparing young people for work? Which aspects have been most successful and why? What should educators, policymakers, and organizations such as foundations do now?

Our goal in publishing this report is to contribute to that discussion by gathering together and summarizing the research that has been carried out in the last several years that evaluates the effectiveness of the school-to-work educational strategy. Organized around a set of themes, we shall present brief summaries of results from recent evaluations.

Although the federal legislation is about to end, the flow of research findings relating to School-to-Work is, if anything, accelerating. Educational innovations take some time to organize and implement, so programs started in the mid 1990s may not have reached full operational levels until the late 1990s, and then there is a lag between implementation and the publication of research findings. Moreover, perhaps the most interesting and useful research tracks program participants over time. This creates an even greater lag between implementation and publication. Therefore, the last two years have seen a flourishing of research results, and some important evaluation projects are still ongoing.

Our conclusion is that the research so far has found generally positive results — the school-to-work strategy does benefit students, teachers, and employers. Although critics of this educational approach feared that it would weaken academic achievement and divert students to low-skilled jobs, truncating their opportunities for college and further study, the growing body of evaluation work so far, even the most rigorous and definitive, has turned up almost no negative results.

9

Background

In the 1980s, several trends led to an extensive national discussion of education reform and workforce development. The 1983 report *A Nation At Risk*[1] claimed that profound weaknesses in the education system were undermining U.S. productivity and competitiveness. Researchers were documenting and analyzing the changing nature of work and changing skill requirements.[2] Increasingly, young people without some post-secondary education could not expect to earn enough money to support a family. America's Choice: High Skills or Low Wages![3] pointed out that many young adults were spending their early years in the workforce moving from one low-wage, dead-end job to another.

At the same time, developments in research on learning and pedagogy emphasized the effectiveness of "learning in context."[4] Cognitive psychologists argued that students learn most effectively if they are taught skills in the context in which they will use those skills. Advocates of constructivism argued for a pedagogic approach in which students are more active learners, guided by their teacher in such a way that they "construct" their own knowledge. These approaches were believed to be promising in helping to ameliorate the problem of students' disengagement from school.

The education reform and workforce development agenda that emerged contained several principles that were eventually included in a series of bills passed in the early 1990s.[5] The School-to-Work Opportunities Act (STWOA) of 1994[6] was the most comprehensive attempt to implement the principles, including the following goals: improved academic skills; strengthened SCANS skills[7]; a greater emphasis on standards; innovative pedagogies, including the integration of academic and vocational instruction and work-based learning; participation of many institutions, including employers, in education; making pathways into particular occupations more transparent; and facilitation of the transition of the "forgotten half" to postsecondary education.

The STWOA was not designed to establish a new secondary school program, but instead distributed seed money to support states in planning and establishing state-wide school-to-work transition systems. To many, it is this goal of system-building that differentiates the STWOA from other education or workforce development initiatives. States were to use the short-term federal funding to amend or incorporate existing career preparation activities, and create links between school reform and workforce development efforts. Once the federal appropriation was distributed, the new systems were to be supported by other long-standing education and workforce development funding streams. The final round of federal funding will be administered by October 1, 2001.

By 1997, more than 90 percent of secondary students in federal grantee states attended schools in districts with partnerships, the local collaborations responsible for stimulating and implementing school-to-work reforms.[8] One of the hallmarks of the legislation was the flexibility allowed to the states in determining their own forms of School-to-Work; thus, the structure and specific activities of these partnerships vary from state to state. Some states highlighted efforts already underway, such as Partnership Academies in California, while others

10

began new efforts, such as teacher externships in New Hampshire. Wisconsin chose to invest the funding in youth apprenticeship programs, which the state had previously initiated.

Thus "School-to-Work" is an umbrella term, encompassing a variety of initiatives, some intensive and others much less so. While it seems clear that school-to-work themes have spread across the country and touch a broad cross-section of students, researchers have also found that brief work-site visits and job shadowing are the most prevalent activities engaged in by students. A survey of high school seniors in eight of the first states that received STWOA grants found that only three percent had participated in all three components called for by proponents: career related academics, comprehensive career development activities, and paid or unpaid work experience linked to school.[9]

The rapid phase-in of the less intensive activities is likely due to their being easiest to implement and least controversial. School-to-Work has faced criticism and a number of challenges,[10] despite vocal support by many policymakers, professional associations, and non-profit organizations. Some of the opposition originally centered on the chosen name, "School-to-Work," which was taken to imply that the initiative would focus on preparing high school students to go directly to work, threatening the college-preparatory curriculum.[11] Because School-to-Work has not been universally lauded, it is important to examine what has been learned to date so that future efforts rely on evidence in expanding the best of what has been achieved and addressing any shortcomings.

This report reviews what is known about the effectiveness of the school-to-work efforts since the legislation. The research literature reports on a wide variety of initiatives that fall under the school-to-work umbrella. We do not attempt to map the extent and type of student participation in these different initiatives; that is being done by Mathematica Policy Research.[12] Mathematica is also measuring the extent to which states and localities are building school-to-work transition systems that will survive beyond the end of the seed money. Our aim was to examine research on the impact on youth of the different components of the budding school-to-work systems, as well as the impact on teachers and employers.

Despite the variation in content and methodology, we found that there is now a growing body of research with encouraging findings on School-to-Work. While some research has found no effects of school-to-work participation, we found no studies reporting that School-to-Work is in any way detrimental to students. Instead, the research has generated evidence that School-to-Work does provide some benefits for students, teachers, and participating employers.

In sum, research indicates that participation in School-to-Work can improve high school students' attendance, grades, and graduation rates. School-to-work students are also just as likely, and in some cases, more likely, to attend college as comparison-group students. School-to-Work also contributes significantly to students' career preparation, through exploration activities and work-based learning experiences. Participation in School-to-Work yields benefits for young people in terms of bringing about planful behavior, maturation, self-confidence, and

an understanding of the importance of school. Some studies show that once they choose to enter the labor market, school-to-work graduates are more likely to gain employment and earn higher wages than comparable groups.

The evidence generally supports the value of School-to-Work, but it should be regarded as promising, not conclusive. Because the initiatives vary, the findings for the students vary as well. For example, similar models may be implemented to different degrees, which can then show different effects for students.[11] As another example, in some cases students in apprenticeship and other more intensive programs have been found to be slightly less likely to attend college, yet it is not obvious that this finding should be considered a negative outcome, because these students generally have found full-time work in the industry for which they have been trained. In addition, researchers are just beginning to address some important questions. We do not yet have any evidence on the effect of school-to-work participation on high-stakes high school exit examinations. And, the question of the extent of student attrition from school-to-work initiatives has been studied very little.

In the next section, we describe in more detail the methodology we used in preparing this report. In sum, we compiled a bibliography of research on the school-to-work initiative, and reviewed every study. We then focused on research reporting on the impact of the school-to-work initiative – on students, teachers, and employers.

An important thread throughout the research is that School-to-Work is an effective means of bringing youth and adults together. Students report positive benefits from their relationships with adults through School-to-Work, and the participating teachers and employers are also positive about the personal attention they can give to youth. Our review of the research leads us to conclude that the main contribution of School-to-Work is likely these new connections between youth and adults, without which the other benefits would not occur.

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[1] National Commission on Excellence in Education, 1983.
[2] Bailey 1989, 1991.
Commission on the Skills of the American Workforce, 1990.
[3] Collins, Brown, & Newman, 1989; Lave and Wenger, 1991; Resnick, 1987.
See Bailey and Morest, 1998, for a more detailed discussion of these principles and their origins.
[4] The others were the 1990 reauthorization of the Perkins Act, and the Goals 2000 Educate America Act of 1994.
[5] The 1991 report from the Secretary's Commission on Achieving Necessary Skills (SCANS) outlined the core competencies necessary for success in the workplace. See SCANS, 1991.
[6] This figure is from Mathematica Policy Research's national evaluation of school-to-work implementation. See Hershey, A. M., Silverberg, M. K., Haimson, J. (1999, February).
[7] Ibid.
[8] For example, some argued that school-to-work would create greater tracking of some students into lower-tier academic programs or low-level occupations. See American Youth Policy Forum, 2000 and Urquiola et al., 1997.
[9] As a result, in many localities, education officials changed the term to "school-to-careers," or devised a new name altogether.
[10] See Hershey, A. M., Silverberg, M. K., Haimson, J. (1999, February).
[11] Kemple and Snipes, 2000.

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12

Methodology

For this report, we reviewed many studies, and we have included a complete bibliography of all those studies, including some not cited. In compiling the list, we consulted with the staff of the National School-to-Work Office, as well as researchers and practitioners in the field. Many such people reviewed our original bibliography in order to ensure that we were not overlooking any relevant research. The final list of citations includes research at the national, state, and district levels.

Everything in the bibliography was reviewed for content, research methodology and evidence of impact. In choosing which studies to highlight, we first used two objective criteria. We included:

- studies that report opinions by or outcomes for students, teachers, or employers, rather than descriptions of program activities or analysis or evaluation of program implementation; and
- studies that were completed recently, preferably after the 1994 School-to-Work legislation was passed.[1]

Ideally we would like to include only those studies that are methodologically definitive. Unfortunately, even the most rigorous evaluations have potential methodological biases, while studies that are weaker methodologically may still contain some useful information. Therefore, the groups of studies that we review vary in their methodologies, and some results are more rigorous than others.

The fundamental methodological problem that confronts school-to-work evaluators, indeed any evaluator, involves the extent to which observed student outcomes can be causally related to program activities or characteristics. If a high school student who participated in a program graduates from high school, gets a job after graduation, or enrolls in college, to what extent can we attribute those outcomes to the program participation? It is possible that that student would have done all of those things without the program.

Thus evaluations must compare program participants to some group of students who do not participate and draw conclusions from differences (or lack of differences) between those two groups. But what is the most appropriate comparison group? In many fields, scientists are able to allocate subjects randomly into an experimental and a control group. If this selection is completely random, then any systematic differences between the two groups can be confidently attributed to the experimental treatment. Although one school-to-work evaluation does use this methodology, and we will report those findings below, random-assignment studies of social or educational programs are difficult to implement and often not feasible at all because the reform involves the whole school.

In the absence of random assignment, evaluators must choose some comparison group, and they use a variety of approaches. In some cases, the evaluator chooses a group of students who share characteristics with the participants, such as parental education, that are believed to contribute to determining outcomes, such as GPA. In other cases, evaluators study a sample of students, some of whom are in the program, and use statistical techniques to "control" for other characteristics that might influence the outcomes.

The validity of these approaches is based on the extent to which the evaluator can take account of all of the characteristics and factors, other than the program itself, which might influence the outcome measures. Problems arise if the evaluator does not know to include a particular characteristic or, more seriously, cannot observe or measure a crucial factor. While random assignment evaluations can avoid problems associated with unknown or unmeasured differences between control and experimental groups, other types of comparison-group approaches cannot. Unobserved differences are particularly serious if those differences are also important in determining who participates in the program. The influence of motivation is an example. If more motivated students are more likely to take the initiative to enroll in a program, then it might be the motivation that accounts for any positive outcomes (compared to outcomes of non-participants), not any actual program effects. On the other hand, if the process of program enrollment selects for characteristics that might be negatively associated with the outcomes, then this selection problem would be less serious. For example, teachers and counselors might encourage those students who are less interested in going to college to enroll in school-to-work programs. Then if we see that the school-to-work participants are more likely than other students with similar observed characteristics to enroll in college, we would have some confidence that the program encourages college enrollment.

The following gives a sense of the range of methodologies used in this report. We include studies from three broad groups. The distinctions are based on the nature of the group to which the school-to-work students are compared.

1) **Randomized experimental design—accounting for measured and unmeasured characteristics**

The Manpower Demonstration Research Corporation Career Academy study uses this methodology. MDRC was able to do this study because there were more applicants to the academies than there were slots available. MDRC was able to work with program operators to randomly select an experimental group from a list of applicants to 10 career academies. Those who were not admitted formed the control group and attended the regular school program or other programs that were not career academies. Thus, given the random selection, there are no systematic differences (even in unmeasured traits such as motivation) between the experimental and the control groups.

14

2) Comparison group design—accounting for measured characteristics

Most of the studies that we report on use some technique to take account of possible observed and measured differences between the school-to-work students and the group to which they are being compared. The following examples demonstrate the variety of comparison group approaches used by the researchers.

Bailey, Hughes, and Barr conducted a survey of 334 employers participating in five school-to-work programs and 323 employers who were not participating, but who were similar in industry and size, and from the same labor markets, as the participants. In addition, the researchers conducted multivariate analyses that explicitly controlled for these and other relevant firm characteristics.

In the Westchester (New York) Institute study, researchers surveyed a random, representative sample of high school seniors in the state, and then divided the students into school-to-work and comparison samples based on responses to questions on school-to-work participation. Data collected in the surveys allowed researchers to control for demographic and educational characteristics. The Colorado senior study used a similar methodology.

Some researchers have used the National Longitudinal Survey of Youth – 1997 (NLSY-97), which includes a set of survey questions that allow a categorization of students with respect to their involvement in school-to-work-like activities. Data available from the survey are used to control for demographic and educational characteristics.

Linnehan created a sample of 202 black urban high school students in one district, all of whom were eligible and applied for work-based learning but only some of whom were placed. In addition to the measured demographic variables used in the analysis, Linnehan was able to control for motivational factors since all of the students in both the control and experimental groups had taken the initiative to apply for the program.

Maxwell (1999) collected data on all students from a single high school district who applied to the local university, comparing the route through college for academy students and non-academy students. She can claim confidence in any positive results because the academy students had a lower socioeconomic background than comparison students. The researchers who carried out the JFF/Boston PIC study also defend the reliability of their positive findings, because the treatment group was much more disadvantaged than the comparison group.

3) No explicit comparison group

Several studies do not use an explicit comparison group. They use a variety of strategies to draw conclusions. For example, Foothill Associates analyzed data from 42 California Partnership Academies, which enroll proportionately more at-risk students than average schools. They had data on student GPAs before and after enrollment in the academies, and attributed improvements in GPAs to participation in the program.

Many of the studies that we review elicited opinions from teachers, employers, and participating students about the benefits of School-to-Work. For example, some studies asked students whether their school-to-work program prepared them for work or for college. In most cases, these types of studies do not use a comparison group. Several states and school districts have carried out such surveys; for example, we located a Peoria survey of 199 Academy students and 13 Academy teachers about their experiences in the Academies; a survey of 1300 Kentucky teachers; and a Charleston County School District survey of all teachers with a response rate of 75 percent. As another example, the Academy for Educational Development 1995 study included a survey of alumni of Academy of Travel and Tourism programs, asking them to rate their program. Mathematica conducted surveys of local school-to-work partnerships at regular intervals so as to measure the growth (or scaling back) of activities over time.

We do not have room to analyze the strengths and weaknesses of each study, but we do report on the nature of the comparisons and the source of the data in order to give some information on which to judge the conclusions.[2] For more detail, the reader should consult the original studies.

[2] For a review of research on school-to-work transition programs preceding the Act, see Stern et al., 1995. We have excluded some studies in which the designs are particularly weak—for example studies that compare outcomes, say GPA, for participant and non-participant groups when admission to the program is based on those same variables.

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School-to-Work supports academic achievement

Research indicates that participation in School-to-Work can improve students' attendance, grades, and graduation rates. The early fears that School-to-Work would turn students' focus away from academic achievement have not been confirmed. Instead, school-to-work students, regardless of their risk of school failure, have comparable or better attendance and graduation rates than students in comparison groups. School-to-work advocates argue that participants can become more motivated academically because their experiences help them see the practical relevance of their class work. However, research regarding school-to-work students' achievement on standardized tests is inconclusive. The few existing studies indicate that there is little, if any, effect on test scores; for example, some school-to-work students' scores improve in one area but remain stagnant in another. Some educators argue that the standardized tests typically used to evaluate learning do not measure many of the non-academic and practical skills that students learn in school-to-work initiatives, but assessments of these non-academic skills are also lacking. Regardless, in comparison to similar students, school-to-work students maintain good grades, which allows them to complete the coursework necessary for college admissions. Finally, studies indicate that school-to-work students attend college in greater numbers than their peers, and that they are better able to choose a major once there.

"...we tend to lose track of what it is like in the real world, and kids are asking us what do I need to know this for?...I can now come back with a specific example of a specific application."

Wills, J. ed. (1998).

School-to-work students maintain good grades and take difficult courses.

Students in school-to-work initiatives earn GPAs that are at least as high as comparable other students, if not higher.

Student grades rose as they spent more time in career academies. This study compared student grades before and after enrollment in the academies.
Foothill Associates. (1997, Summer). California Partnership Academies: 1995-1996 evaluation report. Nevada City, CA: Author.

In state and national surveys, students who participated in School-to-Work had similar grades to non-participants, even though the school-to-work students tended to take more difficult classes.
Westchester Institute for Human Services Research, Inc. (1998, July). New York State school-to-work initiative demonstrates promising student results. The School to Work Reporter 1(2).
Bishop, J., Mane, F., & Ruiz-Quintilla, A. (2000). Who participates in school-to-work programs? Initial tabulations. Ithaca, NY: Biship Associates.

Participation in well-implemented (measured by program characteristics) career academies raised students' GPAs. This conclusion was based on a comparison to non-academy students in the same district.
Maxwell, N.L., & Rubin, V. (2000a). Career academy programs in California: Implementation and student outcomes. Hayward, CA: The Human Investment Research and Education Center.

17

Students who participated in an intensive work-based mentoring program showed increased grade point averages when compared to students who were eligible for but not enrolled in the program.
Linnehan, F. (1998). The effect of work-based mentoring on the academic performance of African-American, urban high school students. Unpublished manuscript. Philadelphia: Drexel University.

Students in a California academy achieved similar GPAs to students in magnet programs in the same schools, even though the magnet programs were more selective than the academy.
Hanser, L., & Stasz, C. (1999). The effects of enrollment in the transportation academy on student outcomes. Paper prepared for the 1999 meeting of the American Educational Research Association. Santa Monica, CA: RAND.

Students in School-to-Work take challenging classes.

In New York State, students with intensive participation in School-to-Work (measured by the number and types of school-to-work activities in which they participate) took more rigorous courses, including advanced math and science courses, than those who did not participate.
Westchester Institute for Human Services Research. (1997). New York State School-to-Work Opportunities System: Interim evaluation report, lessons learned. White Plains, NY: Author.

In Santa Ana Unified School District, enrollment in AP U.S. History, English, physics and chemistry rose significantly after career pathways were instituted in the high school.
Santa Ana Unified School District. (1999). First quarter report summary: Third year: 1998-1999. Santa Ana, CA: Author.

A national survey found that students who participated in one or more school-to-work activities took more lab courses than non-participating students.
Bishop, J., Mane, F., & Ruiz-Quintilla, A. (2000). Who participates in school-to-work programs? Initial tabulations. Ithaca, NY: Bishop Associates.

Analysis of NLSY97 data shows that for black and Hispanic youth, participation in at least one of a variety of school-to-work programs is linked to increased future course-taking in science and math.
Rivera-Batiz, F. L. (2000). The impact of school-to-work programs on minority youth. Paper presented for the national invitational conference, What Do We Know About School-to-Work: Research and Practice. Philadelphia: Temple University Center for Research in Human Development and Education, December 4-5, 2000.

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18

Students in School-to-Work stay in school and complete their diploma.

Almost every study shows that students in School-to-Work have better attendance than comparable students. None indicate that they come to school less often.

Career academy students originally considered to be "high risk" were less likely to be chronically absent from school than randomly assigned control group students.
Kemple, J.J., & Snipes, J.C. (2000). Career academies: Impacts on students' engagement and performance in high school. New York: Manpower Demonstration Research Corporation.

In a New York State survey, students who actively participated in School-to-Work had better attendance and missed fewer classes than students who did not.
Westchester Institute for Human Services Research, Inc. (1997). New York State School-to-Work Opportunities System: Interim evaluation report, lessons learned. White Plains, NY: Author.

Wisconsin apprentices maintained good school attendance throughout their time in the program. Comparison students' attendance rates fell over the same time period.
Orr, M. T. (1996). Wisconsin Youth Apprenticeship Program in printing: Evaluation, 1993-1994. Boston: Jobs for the Future.

Students in a California academy achieved similar attendance rates as more rigorously screened magnet students in the same schools.
Hanser, L., & Stasz, C. (1999). The effects of enrollment in the transportation academy on student outcomes. Paper prepared for the 1999 meeting of the American Educational Research Association. Santa Monica, CA: RAND.

School-to-work students are less likely to drop out of school. This is especially true for those who are considered "high risk" of not graduating.

Participation in a career academy reduced the dropout rate for high-risk students by 34 percent, compared to non-academy students in a randomly selected control group.
Kemple, J.J., and Snipes, J.C. (2000). Career academies: Impacts on students' engagement and performance in high school. New York: Manpower Demonstration Research Corporation.

Students in California Partnership Academies had lower dropout rates than the statewide average, even though the Academies enrolled a higher percentage of "at-risk" students than the state average.
Foothill Associates. (1997, Summer). California Partnership Academies: 1995-1996 evaluation. Nevada City, CA: Author.

19

Analysis of NLSY97 data shows that participation in at least one of a variety of school-to-work programs significantly reduces the likelihood of dropping out of school.
Rivera-Batiz, F. L. (2000). The impact of school-to-work programs on minority youth. Paper presented for the national invitational conference, What Do We Know About School-to-Work: Research and Practice. Philadelphia: Temple University Center for Research in Human Development and Education, December 4-5, 2000.

A study of urban career academies with a Junior Reserve Officers Training Corps (JROTC) component found that a significantly higher proportion of students who were in the program in the 9th grade graduated than would have been expected for those same students in the standard JROTC program or in no program.
Elliott, M. N., Hanser, L. M., & Gilroy, C. L. (2000). Evidence of positive student outcomes in JROTC career academies. Santa Monica, CA: RAND National Defense Research Institute.

School-to-work students are more likely than comparable students to complete the requirements for graduation and graduate on time.

High-risk career academy students were more likely to complete the credits needed to graduate on time than non-academy comparison (randomly assigned) students.
Kemple, J.J., & Snipes, J.C. (2000). Career academies: Impacts on students' engagement and performance in high school. New York: Manpower Demonstration Research Corporation.

Students in a California academy were just as likely to graduate from high school and go to college as were students in the "academic" track.
Maxwell, N.L., & Rubin, V. (1997). The relative impact of a career academy on postsecondary work and education skills in urban, public high schools. Hayward, CA: The Human Resource Investment Research and Education Center.

It is unclear how school-to-work participation affects students' test scores.

The MDRC random-assignment study found that academy participation had no effect, either positive or negative, on standardized test scores.
Kemple, J.J., & Snipes, J.C. (2000). Career academies: Impacts on students' engagement and performance in high school. New York: Manpower Demonstration Research Corporation.

ACT scores for Wisconsin apprentices were comparable to the scores for non-apprentices.
Center on Education and Work. (1999). Wisconsin Youth Apprenticeship: Another road to success...A synthesis of findings & outcomes from evaluation & research studies. Madison, WI: Author.

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School-to-work students are prepared for college.

School-to-work students are just as likely to attend college as comparable other students. Some studies suggest that they are even more likely to do so.

In a New York State survey, the college enrollment rate for intensive school-to-work participants was statistically equivalent to that of the comparison group.
Westchester Institute for Human Services Research, Inc. (1998, July). New York State school-to-work initiative demonstrates promising student results. The School to Work Reporter 1(2).

Graduates of a California career academy were 40 percent more likely to enroll in a four-year college than non-Academy students in the same school district.
Maxwell, N.L., & Rubin, V. (2000a). Career academy programs in California: Implementation and student outcomes. Hayward, CA: The Human Investment Research and Education Center.

In both North Carolina and Colorado, state-wide surveys of students and graduates found that school-to-work participants were 10 percent more likely to enroll in college than other students.
Metis Associates, Inc. (1999a). Evaluation of the North Carolina JobReady initiative: 1998 graduate follow-up survey. New York: Author.
Colorado School-to-Career Partnership. (1999). What works? Colorado high school senior survey, initial results. Denver, CO: Author.

School-to-work students have the opportunity to earn college credit in high school.

Wisconsin Youth Apprentices are able to earn between 3 and 12 credits of advanced standing at state technical colleges. Students reported that this was a major reason they wanted to enter an apprenticeship.
Phelps, L. A., Scribner, J., Wakelyn, D., & Weis, C. (1996). Youth apprenticeship in Wisconsin: A stakeholder assessment. Madison, WI: Center on Education and Work.

Students graduating from the Wisconsin Youth Apprenticeship Program in printing earned at least one semester of college credit prior to entering post-secondary school. Many students stated that this encouraged them to plan for and enter higher education after high school.
Orr, M. T. (1996). Wisconsin Youth Apprenticeship Program in printing: Evaluation, 1993-1994. Boston: Jobs for the Future.

The National Academy Foundation's Academy program includes at least one college course so that students can enter college with advanced standing.
National Academy Foundation program materials. New York: National Academy Foundation.

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21

Graduates of School-to-Work are more likely to choose a major early in their college career than comparable other students.

> Forty three percent of Colorado students who had three or more school-to-work experiences during high school had chosen a major upon entering college; only 28 percent of students without this many school-to-work experiences did so.
> *Colorado School-to-Career Partnership. (1999). What works? Colorado high school senior survey, initial results. Denver, CO: Author.*

> A year after high school graduation, more of the students who had actively participated in school-to-work activities had chosen a college major than comparison students.
> *Westchester Institute for Human Services Research, Inc. (1998, July). New York State school-to-work initiative demonstrates promising student results. The School to Work Reporter 1(2).*

Research on the postsecondary experience of school-to-work participants suggests positive effects, and more research is currently underway.

> Career academy graduates who enrolled in a nearby state university were less likely to need remedial coursework and more likely to receive their bachelor's degrees, compared to other graduates from the same district.
> *Maxwell, N.L. (1999). Step to college: Moving from the high school career academy through the four-year university: MDS 1313. Berkeley, CA: National Center for Research in Vocational Education.*

The ongoing MDRC evaluation is following academy students for four years after scheduled high school graduation, and a current evaluation of the National Academy Foundation by the Institute on Education and the Economy is surveying alumni of that program.

"School-to-work is all about finding something in life you love so much you'd do it for free, but you learn to do it so well you get paid for it"

—STW student
The Public Forum Institute, (2000).

22

School-to-Work supports career preparation

Educators who are implementing School-to-Work have tried to design their programs so that they prepare students for both college and a career. We have already discussed research on academic preparation. Research on career preparation shows that school-to-work programs do teach young people career-related skills and abilities, but at the same time do not lock students into a specific career at an early age. When students spend time in the workplace, they are able to learn about different careers and acquire work-related skills from the adults around them, regardless of their future career direction.

Many high school students have jobs, but school-to-work job placements are of higher quality, on measures of educational values of work, than the typical jobs held by teenagers. Thus school-to-work students are more likely to learn skills and to work with adults who care about their professional and educational development than students who "just get jobs." They are also more likely to work in areas different from those in which youth traditionally find employment. Some preliminary evidence suggests that once they enter the labor market, school-to-work graduates are more likely to gain employment and earn higher wages.

School-to-work students are able to define their career interests and goals for the future.

The ability of Arizona tenth graders to define a career interest is directly related to the number of school-to-work activities in which they participated.
Larson, E. H., & Vandegrift, J. A. (2000b). Tenth grade students' perceptions of career preparation and work experience in Arizona Schools: Three-year trends and 1999 results. (Arizona School-to-Work Briefing Paper #19). Tempe, AZ: Morrison Institute for Public Policy.

Both college-bound and non-college-bound participants in School-to-Work feel that their career exploration experiences were valuable in helping them clarify their career goals.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

The same study found that students who changed their career goals were just as likely to view school-to-work activities as useful as those who did not change their goals. Thus the school-to-work activities had value outside of the career area around which the student's school-to-work schooling was organized.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

Of the youth apprentices surveyed from a small Wisconsin printing program, 80 percent believed that their experience offered them valuable career information, focus, and direction.
Orr, M. T. (1996). Wisconsin program in printing: Evaluation, 1993-1994. Boston: Jobs for the Future.

23

Apprentices in a New York State school-to-work initiative reported that their experience allowed them to identify career paths and the appropriate "steps along them."
Hamilton, M.A., & Hamilton, S. (1997). Learning well at work: Choices for quality. Washington, DC: National School-to-Work Office.

School-to-Work helps young people become prepared for the world of work.

Students in School-to-Work are exposed to many different career development activities.

Career academy students were significantly more likely than randomly selected comparison students to participate in both in-school career development activities, such as receiving instruction on how to act on the job, and out-of-school development activities, such as career-related field trips.
Kemple, J.J., Poglinco, S., & Snipes, J.C. (1999). Career academies: Building career awareness and work-based learning activities through employer partnerships. New York: Manpower Demonstration Research Corporation.

Almost two-thirds of seniors in school-to-work partnerships surveyed reported participating in four or more of the following five career development activities: taking interest inventories, having employer talks at school, discussing careers with school personnel, taking a work-readiness class, or having a job-shadowing experience.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

School-to-Work teaches students job-readiness skills.

Eighty-six percent of academy alumni surveyed said that the experience helped them gain job-interviewing skills. Of the academy seniors surveyed, 79 percent said that their internship was better at teaching them how to prepare for a job than other jobs they had had.
Academy for Educational Development. (1995). Academy of Travel and Tourism: 1993-94 evaluation report. New York: Author.

In a Colombia, MO survey of students in schools with school-to-work initiatives, approximately 60 percent indicated that these activities helped them learn skills like writing a resume or conducting a job search.
Institute for Workforce Education. (1998). The school-to-work system in Columbia, Missouri: A quantitative evaluation. Columbia, MO: Author.

24

Students who acquire their jobs through School-to-Work are likely to learn skills that employers value.

> Students in a variety of school-to-work activities reported that their internships allowed them to make decisions, solve problems, and work in groups or as part of a team.
> *Academy for Educational Development. (1995). Academy of Travel and Tourism: 1993-94 evaluation report. New York: Author.*
> *Stasz, C. (1999). Students' perceptions of their work-based learning experiences: A comparison of four programs. Paper prepared for the annual meeting of the American Educational Research Association, Montreal, Quebec.*

> Seventy-two percent of Wisconsin youth apprentices believe that the skills they learned through their apprenticeship prepared them well for employment.
> *Center on Education and Work. (1999). Wisconsin Youth Apprenticeship: Another road to success...a synthesis of findings & outcomes from evaluation & research studies. Madison, WI: Author.*

> The majority of Boston employers who supervise students in work-based learning said that their students work with computers, are involved in customer-relations activities, and perform multi-step tasks.
> *Almeida, C., Goldberger, S., & Lalbeharie, I. (1999). Boston supervisor survey: Findings and recommendations. Boston: Jobs for the Future.*

During their work-based learning experiences, school-to-work students learn how to behave in a professional environment and to work well with other people.

> Students in a variety of work-sites learned to understand the social expectations of work, and to behave in ways that were appropriate for their jobs.
> *Stasz, C., & Kaganoff, T. (1997). Learning how to work: Lessons from three high school programs. (MDS-916). Berkeley, CA: National Center for Research in Vocational Education. (RP-667). Santa Monica, CA: RAND.*

> Apprentices in a New York State school-to-work initiative learned the importance of teamwork and how individual jobs fit into the larger company. In interviews, they also frequently mentioned improved ability to relate to and communicate with adult co-workers.
> *Hamilton, M.A., & Hamilton, S. (1997). Learning well at work: Choices for quality. Washington, DC: National School-to-Work Office.*

> Wisconsin youth apprentices reported that their work helped them learn to act professionally, relate to adults, and understand what is expected of them once they began their postsecondary experiences. Parents concurred, noting that their children's self-confidence and self-esteem increased through their apprenticeship.
> *Phelps, L. A., Scribner, J., Wakelyn, D., & Weis, C. (1996). Youth apprenticeship in Wisconsin: A stakeholder assessment. Madison, WI: Center on Education and Work.*

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25

Employers believe that school-to-work students perform well on the job.

Ninety nine percent of employers involved in New York State's school-to-work initiative said that they were satisfied with the performance of the students, and 97 percent planned to continue their involvement with the program.
Westchester Institute for Human Services Research, Inc. (1998, April). New York employers show strong support for School-to-Work. The School to Work Reporter 1(1).

The majority of Wisconsin Youth Apprenticeship employers rated their apprentices as better than other entry-level employees in their computer skills, understanding of the company, technical skills, and ability to act responsibly and professionally.
Orr, M. T. (1996). Wisconsin program in printing: Evaluation, 1993-1994. Boston: Jobs for the Future.

The jobs that students obtain through School-to-Work tend to be different from and of higher quality than the jobs they would normally get.

Academy students were significantly more likely than randomly assigned comparison students to say that their jobs gave them opportunities to learn new things.
Kemple, J. J., Poglinco, S., & Snipes, J.C. (1999). Career academies: Building career awareness and work-based learning activities through employer partnerships. New York: Manpower Demonstration Research Corporation.

Students in school-sponsored work-based learning have access to more diverse workplaces than youth who do not obtain their jobs through school.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

"...the difference between co-op and just a regular job is that they advise you along the way."

Hollenbeck, K. (1996).

School-to-work internships were more likely to be in the service sector, which includes health, education, and business services, rather than in retail trade, where American youth typically work.
Bailey, T.R., Hughes, K.L., & Barr, T. (2000). Achieving scale and quality in school-to-work internships: Findings from two employer surveys. Educational Evaluation and Policy Analysis, 22(1), 41-64.

Wisconsin youth apprentices work in areas such as finance, health, manufacturing, machining, printing, and biotechnology.
Phelps, L. A., Scribner, J., Wakelyn, D., & Weis, C. (1996). Youth apprenticeship in Wisconsin: A stakeholder assessment. Madison, WI: Center on Education and Work.

Students whose paid work is through School-to-Work spend more time in training, and are much more likely to receive quality feedback about their performance, than students who have found paid positions on their own.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

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26

Graduates of school-to-work programs have better labor market outcomes than do other high school graduates.

Employers believe that young people who participated in School-to-Work are better prepared for work than are other high school graduates.

> North Carolina employers who hired former school-to-work participants reported that the former students required less training, had a greater ability to work in teams, and had better work ethics than other new hires.
> *Metis Associates. (1999b). Evaluation of the North Carolina JobReady initiative: Survey of employers. New York: Author.*

> Ninety percent of 1999 Wisconsin Youth Apprenticeship graduates received offers of part- or full-time employment from their Youth Apprenticeship employers following completion of the program.
> *Scholl, L. and Smyth, C. (2000). Exit survey of 1999 Wisconsin Youth Apprenticeship graduates. Madison, WI: Center on Education and Work, University of Wisconsin-Madison.*

School-to-work participation is related to greater success in gaining employment after high school.

> Graduates of ProTech, a school-to-work program in Boston, had an unemployment rate of only 3 percent, whereas the national youth unemployment rate was 23 percent.
> *Jobs for the Future. (n.d.). School-to-career initiative demonstrates significant impact on young people. Boston: Author.*

> Eighty-five percent of Wisconsin apprentices believed that their school-to-work experiences had helped them get their current job.
> *Center on Education and Work. (1999). Wisconsin Youth Apprenticeship: Another road to success...a synthesis of findings & outcomes from evaluation & research studies. Madison, WI: Author.*

The jobs held by school-to-work graduates are more likely to be within meaningful career paths and to offer high wages than the jobs of other high school graduates.

> New York State graduates who had participated intensively in School-to-Work and who were attending college and working were more likely than comparison students to report that their jobs allowed them to use their skills and abilities, helped them learn new skills, and fit in with their long-term career plans.
> *Westchester Institute for Human Services Research, Inc. (1998, July). New York State's school-to-work initiative demonstrates promising student results. The School to Work Reporter 1(2).*

> In the same study, former school-to-work participants who opted to work full time rather than attend postsecondary school were more likely than other graduates to indicate that their jobs fit in with their long-term career plans and indicated a higher

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27

level of satisfaction with their jobs.
Westchester Institute for Human Services Research, Inc. (1998, July). New York State's school-to-work initiative demonstrates promising student results. The School to Work Reporter 1(2).

In Wisconsin, 70 percent of graduates from the Youth Apprenticeship Program believed that they had obtained high wage employment as a result of their apprenticeship participation.
Center on Education and Work. (1999). Wisconsin Youth Apprenticeship: Another road to success...a synthesis of findings & outcomes from evaluation & research studies. Madison, WI: Author.

Graduates of ProTech earned, on average, $0.82 per hour more than did comparison students.
Jobs for the Future. (n.d.). School-to-career initiative demonstrates significant impact on young people. Boston: Author.

One year after graduation, those who had participated in a Maryland Career and Technology Education program reported significantly higher hourly wages, more hours worked in a week, and greater relevancy of their high school studies to both their current jobs and current postsecondary school or training than did non-participants.
Griffith J., Wade, J., & Loeb, C. (1998). Postsecondary school activities of Montgomery County Public School graduates: High school student profiles associated with postsecondary school activities. Rockville, MD: Montgomery County Public Schools.

School-to-work participants are likely to view work as a way to learn new things and prepare for the future.

In qualitative studies, students in School-to-Work commented that they discovered the value of "learning how to learn" through their experiences.
Hamilton, M.A., & Hamilton, S. (1997). Learning well at work: Choices for quality. Washington, DC: National School-to-Work Office.
Stasz, C. (1999). Students' perceptions of their work-based learning experiences: A comparison of four programs. Paper prepared for the annual meeting of the American Educational Research Association, Montreal, Quebec.

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28

School-to-Work supports youth development

Participation in School-to-Work can contribute to general youth development. Researchers have found that in order to build the assets and competencies needed for healthy development, older adolescents need a variety of opportunities that allow them to explore themselves and their environment. Through this exploration they can begin to develop meaningful goals and awareness of the pathways towards meeting those goals.[1] School-to-Work facilitates this exploration through applied learning experiences and by offering youth the opportunity to make connections with non-family adults and deepen their relationships with adults at school. These processes have the potential to positively influence young people's academic achievement.

School-to-Work helps students plan for the future and act in ways that will help them achieve their goals.

In a survey given to Columbia, MO, junior high and high school students to evaluate the effectiveness of the career paths school-to-work initiative, most of the students reported using the career paths for exploration and to help plan for the future. Most students anticipated linking their high school courses to one or more paths.
Institute for Workforce Education. (1998). The school-to-work system in Columbia, Missouri: A quantitative evaluation. Columbia, MO: Author.

School-to-work students in New York State indicated a higher degree of long-term career planning than did comparison students, and they stated that their experiences helped them make their career decisions.
Westchester Institute for Human Services Research, Inc. (1997). New York State school-to-work opportunities system: Interim evaluation report, lessons learned. White Plains, NY: Author

Wisconsin youth apprentices stated that they gained an understanding of the education and skills needed for careers in their chosen fields. They used this information to make decisions about postsecondary education and employment.
Phelps, L. A., Scribner, J., Wakelyn, D., & Weis, C. (1996). Youth apprenticeship in Wisconsin: A stakeholder assessment. Madison, WI: Center on Education and Work.

"I can also talk to adults and relate to them. I can talk about work and things. I feel more mature."

—New York State Apprentice
Hamilton & Hamilton (1997).

School-to-work students feel that their teachers and peers make up a supportive "second family."

Students frequently commented on the "family-like atmosphere" of career academies and the fact that their teachers were supportive and approachable. Academy students were also more likely than a comparison group to believe that their peers were supportive of them.
Kemple, J. J. (1997). Communities of support for students and teachers: Emerging findings from a 10-site evaluation. New York: Manpower Demonstration Research Corporation.

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29

In focus group interviews, academy students indicated that the sense of community and support that they received from the program gave them an incentive to attend school and apply themselves in school.
Academy for Educational Development. (1995). Academy of Travel and Tourism: 1993-94 evaluation report. New York: Author.

Students are more confident about themselves when they learn new skills in their school-to-work activities.

In a study of New York State youth apprentices, evidence from multiple sources indicated that the apprentices' pride and self-esteem rose as their knowledge and skill level increased.
Hamilton, M.A., & Hamilton, S. (1997). Learning well at work: Choices for quality. Washington, DC: National School-to-Work Office.

In observations of students in a variety of work-based experiences, researchers found that the students felt confident in their skills, and were often pushed to try new things.
Stasz, C., & Kaganoff, T. (1997). Learning how to work: Lessons from three high school programs. (MDS-916). Berkeley, CA: National Center for Research in Vocational Education. (RP-667). Santa Monica: RAND.

Students report that school-to-work activities make them more interested in school.

When compared to students who did not intensely participate in School-to-Work, New York State school-to-work students had a higher level of interest in school.
Westchester Institute for Human Services Research, Inc. (1998, July). New York State's school-to-work initiative demonstrates promising student results. The School to Work Reporter 1(2).

In Peoria, IL, half of all academy students reported that they had become more interested in school since entering the program.
Peoria Public Schools. (1995). Career academies program evaluation, 1994-1995 school year. Peoria, IL: Author.

Students state that School-to-Work helps them understand why school is important.

In Wisconsin, 80 percent of youth apprentices indicated that their apprenticeship had influenced their educational plans, and many indicated that they planned to attend a four-year, rather than a two-year, college as a result of their experiences.
Orr, M. T. (1996). Wisconsin Youth Apprenticeship Program in printing: Evaluation, 1993-1994. Boston, MA: Jobs for the Future.

30

Two-thirds of academy students said that the academy helped them understand why staying in school is important.
Peoria Public Schools. (1995). Career academies program evaluation. 1994-1995 school year. Peoria, IL: Author.

In Columbia, MO, of the elementary students surveyed who participated in school-to-work activities, nearly all indicated an understanding of the fact that school can help them prepare for the work they will do in the future.
Institute for Workforce Education. (1998). The school-to-work system in Columbia, Missouri: A quantitative evaluation. Columbia, MO: Author.

School-to-Work brings adults and youth together.

The adults involved in School-to-Work can positively influence students' educational achievement.

Students who spent more time with adult mentors at the workplace had higher grade point averages and better attendance than students who spent less time with mentors.
Linnehan, F. (1998). The effect of work-based mentoring on the academic performance of African-American, urban high school students. Unpublished manuscript. Philadelphia: Drexel University.

In interviews with employers involved in a New York State youth apprenticeship program, the employers frequently described themselves as role models and "advice givers" who emphasize the importance of education to the students.
Hamilton, M.A., & Hamilton, S. (1997). Learning well at work: Choices for quality. Washington, DC: National School-to-Work Office.

School-to-work employers can help students make decisions about college and careers.

Apprenticeship supervisors in New York State noted in interviews that they make an effort to help guide students through the process of choosing a career path.
Hamilton, M.A., & Hamilton, S. (1997). Learning well at work: Choices for quality. Washington, DC: National School-to-Work Office.

The majority of employers involved in Boston school-to-work initiatives indicated that they discussed with students their futures, postsecondary plans, current classroom work, and personal interests.
Almeida, C., Goldberger, S., & Lalbeharie, V. (1999). Boston supervisor survey: Findings and recommendations. Boston: Jobs for the Future.

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31

School-to-Work can provide students with a network of supportive adults.

As School-to-Work expanded in Arizona, the numbers of middle and high school students who indicated that they found the adults in their life helpful increased substantially.
Larson, E.H., & Vandegrift, J.A. (2000a). Seventh grade students' perceptions of career awareness and exploration activities in Arizona Schools: Three-year trends and 1999 results. (Arizona School-to-Work Briefing Paper #18). Tempe, AZ: Morrison Institute for Public Policy.
Larson, E.H., & Vandegrift, J.A. (2000b). Tenth grade students' perceptions of career preparation and work experience in Arizona Schools: Three-year trends and 1999 results. (Arizona School-to-Work Briefing Paper #19). Tempe, AZ: Morrison Institute for Public Policy.

In a survey, Wisconsin apprentices noted that their relationships with adults at work gave them a network that supported their learning and career development.
Orr, M. T. (1996). Wisconsin Youth Apprenticeship program in printing: Evaluation, 1993-1994. Boston: Jobs for the Future.

In a study of ten career academies, the quantitative and qualitative data showed that academy teachers were more likely to emphasize personal support for their students than were non-academy teachers.
Kemple, J. J. (1997). Communities of support for students and teachers: Emerging findings from a 10-site evaluation. New York: Manpower Demonstration Research Corporation.

Wisconsin youth apprentices indicated that they feel that they have business contacts that will help them get jobs in the future.
Phelps, L. A., Scribner, J., Wakelyn, D., & Weis, C. (1996). Youth apprenticeship in Wisconsin: A stakeholder assessment. Madison, WI: Center on Education and Work.

[1] Cahill & Pitts, 1997; Pittman, Irby, & Ferber, n.d.

32

Teachers see value in School-to-Work

Teachers believe in School-to-Work and gain professionally from their participation in it. Most teachers who are involved with School-to-Work believe that it is a positive initiative. When surveyed, they indicate that School-to-Work helps students achieve at high levels. Teachers also benefit professionally from their participation, through development workshops, business externships and increased motivation.

Teachers believe that School-to-Work is good for students.

Over 60 percent of Kentucky teachers surveyed said that they were involved in School-to-Work because they believed that it was effective.
Balsczyc, J., & Bialek, S. (1999). Improving & sustaining Kentucky's system of school-to-work: Summary report and data supplement. Madison, WI: Center on Education and Work.

In Arizona, educator support for the state's school-to-work initiative grew significantly in the three years following its implementation, indicating that the more familiar educators are with School-to-Work, the more they believe in its value.
Vandegrift, J.A., & Wright, J. (1999). Arizona's school-to-work initiative: Four-year trends in public opinion. (Arizona School-to-Work Briefing Paper #17). Tempe, AZ: Morrison Institute for Public Policy.

"This is what makes me want to get up in the morning and go to work. Getting out with adults, going to the workshops, talking with other teachers, with coaches; all of those things make you think that you're actually a professional."

—School-based apprenticeship coordinator
Hamilton & Hamilton (1997).

The same study found that 69 percent of the state's teachers and 70 percent of administrators believe that School-to-Work is so valuable that support for it should be incorporated into the state budget once federal funding ends.
Vandegrift, J.A., & Wright, J. (1999). Arizona's school-to-work initiative: Four-year trends in public opinion. (Arizona School-to-Work Briefing Paper #17). Tempe, AZ: Morrison Institute for Public Policy.

The majority of teachers in Charleston County believe that School-to-Work is appropriate for students at all grade levels, and regardless of whether or not they plan to attend college.
Charleston County School District. (1999). Annual curriculum survey of teachers and counselors. Charleston, SC: Author.

Teachers can benefit from participating in work-based professional development.

Some teachers who spent time in businesses through school-to-work externships reported that their teaching improved and that they became more proficient in offering their students work-based learning and hands-on activities.
McPherson, B., Rainey, C., Roach, T.D., Rogers, H., & Wamba, N.G. (Delta Pi Epsilon Research Team). (2000). Perceptions and attitudes of school personnel towards educator externships. Unpublished manuscript.

In Charleston County, teachers who participated in work-based experiences were more likely to use cooperative learning strategies and integrated curricula than other teachers in the district.
Charleston County School District. (1999). Annual curriculum survey of teachers and counselors. Charleston, SC: Author.

Teachers report that participating in School-to-Work keeps them motivated to teach.

In Peoria, Illinois, 73 percent of academy teachers indicated that teaching in the academy "rekindled their enthusiasm for teaching."
Peoria Public Schools. (1995). Career academies program evaluation, 1994-1995 school year. Peoria, IL: Author

In a study of ten career academies, academy teachers were more likely than their non-academy peers to feel that they were part of a teacher community, and were more satisfied with their work.
Kemple, J. J. (1997). Communities of support for students and teachers: Emerging findings from a 10-site evaluation. New York: Manpower Demonstration Research Corporation.

34

Employers are enthusiastic about School-to-Work

Employer participation in the school-to-work initiative is widespread. Many national business organizations have been vocal in their support.[1] In partnering with schools, employers serve as resources to both the adult educators and the students. Employers participate not only because they see benefits for the youth and for society, but also because they see benefits to their own businesses.

Surveys of employers find that vast majorities support the school-to-work vision and initiative.

Over 90 percent of employers surveyed in Maryland said that improving or expanding technical training in high schools is important in helping to improve the job skills of the workforce.
Maryland Business Research Partnership. (1997, October). The Maryland employers' workforce skills development and workforce preparedness survey. Baltimore, MD: Author.

In New York State, 88 percent of participating employers surveyed said that School-to-Work was a good direction for education to take.
Westchester Institute for Human Service Research, Inc. (1998, April). New York employers show strong support for School-to-Work. The School-to-Work Reporter 1(1).

Participating New York State employers also believe that School-to-Work supports academics.
Westchester Institute for Human Service Research, Inc. (1998, April). New York employers show strong support for School-to-Work. The School-to-Work Reporter 1(1).

Over 90 percent of employers participating in the Wisconsin Youth Apprenticeship program would recommend the program to other employers.
Phelps, L. A., & Jin, M. (1997). Wisconsin youth apprenticeship employer survey. Madison, WI: Department of Workforce Development, Division of Connecting Education and Work.

Almost all of the New York State participating employers surveyed said they would definitely or probably continue their participation.
Westchester Institute for Human Service Research, Inc. (1998, April). New York employers show strong support for School-to-Work. The School-to-Work Reporter 1(1).

Employer participation in school-to-work partnerships and in work-based learning activities is widespread.

In 1997, 26 percent of all establishments employing 20 or more people were participating in a school-to-work partnership.
Cappelli, P., Shapiro, D., & Shumanis, N. (1998). Employer participation in school-to-work programs. Manuscript. University of Pennsylvania: National Center on the Educational Quality of the Workforce.

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From 1996 to 1998, business membership in individual partnerships expanded from, on average, 16 to 30 firms.
Hulsey, L., Van Noy, M., & Silverberg, M. (1999). The 1998 national survey of local school-to-work partnerships: Data summary. Princeton, NJ: Mathematica Policy Research, Inc.

Even those employers not participating in formal partnerships have increased their participation in work-based learning.
Shapiro, D. (1999, January). School-to-work partnerships and employer participation: Evidence on persistence and attrition from the national employer survey. Manuscript. Philadelphia: Institute for Research on Higher Education, University of Pennsylvania.

According to a 1997 national survey of employers, 39 percent were participating in some form of work-based learning.
Cappelli, P., Shapiro, D., & Shumanis, N. (1998). Employer participation in school-to-work programs. Manuscript. University of Pennsylvania: National Center on the Educational Quality of the Workforce.

In surveys of school-to-work partnerships in the 1995-6 and 1996-7 school years, the percent of schools receiving employer support across a wide range of activities increased.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

Employers participating in School-to-Work serve as resources to students and schools.

Work-based learning placements for students tend to be different from the typical after-school jobs youth have.
Bailey, T. R., Hughes, K. L., & Barr, T. (2000). Achieving scale and quality in school-to-work internships: Findings from two employer surveys. Educational Evaluation and Policy Analysis 22(1): 41-64.
National Center for Postsecondary Improvement and the Consortium for Policy Research on Education. (1997). Bringing School-to-Work to scale: What employers report: First findings from the new administration of the national employers survey (NES-II) (NCPI-2-04). Stanford, CA: Author.

Participating employers in Boston tended to provide work-based learning placements that require and teach skills.
Almeida, C., Goldberger, S., & Lalbeharie, V. (1999). Boston supervisor survey: Findings and recommendations. Boston: Jobs for the Future.

Students who obtained paid or unpaid work-based learning positions through schools were more likely than students who obtained their positions outside of school to see substantive connections between their studies and work experience.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

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Employers reported that they discussed schoolwork, personal interests, and post-secondary and other future plans with their student interns.
Almeida, C., Goldberger, S., & Lalbeharie, I. (1999). Boston supervisor survey: Findings and recommendations. Boston: Jobs for the Future.

Students with paid work-based learning positions were significantly more likely to spend at least half of their time at the work-site in training, and discuss possible careers with their employers, than students with paid positions not related to school.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.

"Increasing collaboration between employers and schools has been a particularly successful aspect of STW implementation."

Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February).

Some employers provide work-based learning placements for teachers as well as other school staff development assistance.
Hershey, A. M., Silverberg, M. K., & Haimson, J. (1999, February). Expanding options for students: Report to Congress on the national evaluation of school-to-work implementation. Princeton, NJ: Mathematica Policy Research, Inc.
Westchester Institute for Human Service Research, Inc. (1998, April). New York employers show strong support for School-to-Work. The School-to-Work Reporter 1(1).

Employers who participate tend to have more favorable perceptions of their local high schools and tend to use school information in their hiring decisions.
Shapiro, D., & Goertz, M. E. (1998, April). Connecting work and school: Findings from the 1997 national employer survey. Paper presented at the annual meetings of the American Educational Research Association, San Diego, CA.

Employers speak well of their student interns.

In a survey of participating New York State employers, 99 percent of those providing work-based learning said that they were satisfied or very satisfied with the performance of the students.
Westchester Institute for Human Service Research, Inc. (1998, April). New York employers show strong support for School-to-Work. The School-to-Work Reporter 1(1).

More than 80 percent of intern supervisors surveyed in Boston rated their students as similar or superior to their typical hires on skills ranging from productivity to job-related math and communication skills.
Almeida, C., Goldberger, S., & Lalbeharie, I. (1999). Boston supervisor survey: Findings and recommendations. Boston: Jobs for the Future.

Participating employers surveyed tended to rate their interns' skills as being comparable to or better than those of their regular entry-level workers, particularly soft skills such as attitude and attendance.
Bailey, T. R., Hughes, K. L., & Barr, T. (2000). Achieving scale and quality in school-to-work internships: Findings from two employer surveys. Educational Evaluation and Policy Analysis, 22(1), 41-64.

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37

Employers who hired their student interns were more satisfied with their work than with that of other employees: employers notice a positive difference in their employees who have had work-based learning.
Metis Associates. (1999b). Evaluation of the North Carolina JobReady initiative: Survey of employers. New York: Author.

Employers see real benefits to their firms from participation.

The benefits to employers, such as reduced recruitment and training costs, the value of student interns' work, and higher productivity and morale for existing workers, can be higher than the costs.
National Employer Leadership Council. (1999). Intuitions confirmed: The bottom-line return on school-to-work investment for students and employers. Washington, DC: Author.
Bassi, L., & Ludwig, J. (2000). School-to-work programs in the United States: A multi-firm case study of training, benefits, and costs. Industrial and Labor Relations Review, 53, 219-239.

Over eighty percent of participating Wisconsin employers said that the Youth Apprenticeship Program benefited their company "somewhat" or "a lot."
Phelps, L. A., & Jin, M. (1997). Wisconsin youth apprenticeship employer survey: Madison, WI: Department of Workforce Development, Division of Connecting Education and Work.

Data from the National Employer Survey indicate that employer involvement with local high schools is associated with better experiences in hiring local graduates as well as having lower turnover of their youth employees.
Shapiro, D., & Iannozzi, M. (1998, September). Benefits to bridging work and school. Annals of the American Academy of Political and Social Science 559: 157-66.

In the Boston employer survey, over 80 percent of intern supervisors said that students' contribution to productivity was a major or moderate benefit.
Almeida, C., Goldberger, S., & Lalbeharie, V. (1999). Boston supervisor survey: Findings and recommendations. Boston: Jobs for the Future.

Employers who hired their former interns said that, compared to other employees, the former interns performed more effectively: they required less training, had better work ethics, better respect for supervisors, and greater ability to work in teams.
Metis Associates. (1999b). Evaluation of the North Carolina JobReady initiative: Survey of employers. New York: Author.

A study of career academy graduates found a direct positive impact of the academy program on later job performance, compared with non-academy graduates.
Linnehan, F. (1996). Measuring the effectiveness of a career academy program from an employer's perspective. Educational Evaluation and Policy Analysis 18(1): 73-89.

[1] For example, the U.S. Chamber of Commerce, and the National Alliance of Business.

38

Conclusion

It is perhaps ironic that just as the major federal role in School-to-Work is winding down, the flow of evaluation research with positive findings is increasing. Our review has indeed turned up many positive findings. School-to-Work does support academic achievement in a variety of ways such as reducing the dropout rate and increasing college enrollment, although no study has found any effects on academic test scores. School-to-Work teaches skills and abilities useful in careers and helps students think about and plan their future. The strategy appears to help students mature and develop psychologically. All studies that look at the issue find that School-to-Work encourages more and more varied types of contact between students and adults, including teachers and work-site mentors. Teachers and employers are also positive about School-to-Work.

We have drawn these conclusions from studies that use a variety of methodologies, and some of those provide more definitive conclusions than others. We are particularly encouraged by the positive findings from the rigorous random-assignment study by MDRC. Several other studies have made careful attempts to take account of measurable factors that might account for any positive program outcomes. In many cases, positive program effects remain even after controlling for other possible explanations. Our confidence in the positive results is boosted both because many of these studies report similar findings and because in many cases, school-to-work programs attract less successful and less college-oriented students. Thus even a no-effects finding, to say nothing of a positive finding, might indicate that the students benefited. The individual opinions of participants, teachers, and employers may not carry the same weight as carefully done studies with large samples and objective measures; nevertheless, the studies that do report opinions consistently show positive attitudes about School-to-Work.

In the end, School-to-Work as a large scale and more or less coherent program has really only just started. A few years are never enough to assess the effectiveness of such a broad and complex initiative. Certainly, the findings of the research so far are more than optimistic enough that parents, educators, private funders, and policymakers should continue to develop and study the school-to-work strategy despite the reduced federal role.

39

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